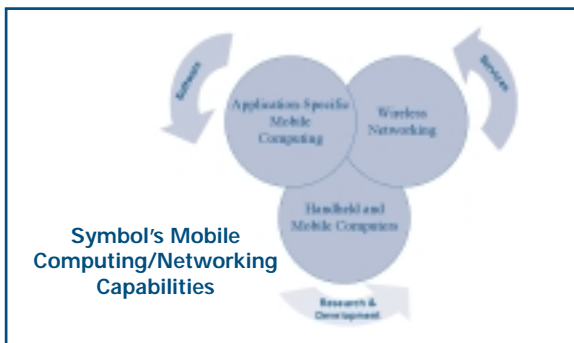


Symbol Technologies: Defining Wireless Networking

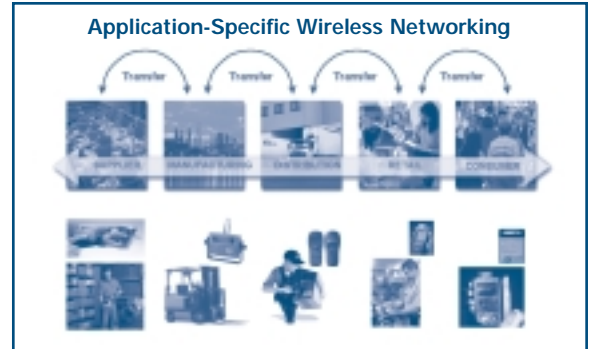
Symbol Technologies has been a leader in wireless throughout our corporate history. The company's range of expertise in wireless technologies, applications, and mobile computing and communications products have defined Symbol almost from our founding in 1975. Wireless has been and remains key to our success and the success of Symbol customers.

The best way to think about Symbol Technologies is as a mobile networking company with a focus on many aspects of information technology (IT) within the enterprise. Few firms, anywhere in the world today, can match our wireless networking expertise across businesses of all sizes and industries of all types, in essentially every application of mobile computing and communications technology. And, of course, our technical knowledge is matched by our detailed, in-depth experience with a vast range of markets, applications, customer requirements, and solutions. Our commitment to leadership in wireless extends to all areas of wireless technology from wireless LANs to wireless WANs, personal-area networks based on Bluetooth, real time location and tracking applications, voice-over IP (VoIP), industry-leading wireless security products, innovation in wireless quality of service (QoS), and highly visible leadership in industry standards. And we're working to extend our leadership with a constant stream of innovative new products and services.



Wireless: Mission-Critical in the Enterprise

It's no surprise that wireless has achieved such a prominent position across such a broad range of industries and applications. Symbol's long history in application-specific computing has given us a unique perspective on the requirements each market segment presents, and we've responded with the most comprehensive wireless product set available. Indeed, we see wireless as now mission-critical within the enterprise. Wireless provides freedom of mobility while allowing access to vital information. Wireless reduces costs, improves productivity, and allows the very nature of work to change in response to new challenges and opportunities. Wireless brings information where it's needed, when it's needed, and puts it in the hands of those who can put it to use right away no matter what the task at hand. And wireless continues to change the face of business today — consider just these few application areas:



• Retail

Wireless networking is one of the most important, transformative technologies in the retail industry. Using wireless technology retailers can achieve exceptional operating efficiencies and heightened productivity – while also enhancing customer service and satisfaction. Secure wireless point-of-sale systems. Self checkout and personalized mobile commerce applications. For these and other innovations and opportunities, Symbol provides the essential enabling infrastructure.

• Transportation/Logistics

Wireless LANs allow improved tracking of materials in motion, and enable end-to-end management of ever-increasing volumes of goods. Symbol wireless solutions allow you to provide secure service capabilities to varied vendors and services throughout logistics operations.

• Government

In countless areas of federal, state and municipal government, from the military to civilian agencies to local public safety organizations, wireless networks and mobility applications are revolutionizing many processes and functions. Wireless data access and sharing on hospital and other multi-building campuses. Secure, mobile communications in support of homeland defense. For these and so many other needs and applications. Symbol provides secure wireless technology.

• Manufacturing

The need for production efficiencies has never been greater. Instant data collection and dissemination supported by wireless technology – combined with its investment protection and scalability – empowers managers and employees on the production floor, with real-time information at their fingertips.

• Healthcare

Healthcare professionals are using wireless networking to bring desktop applications to the point of care, enhancing patient care, delivering needed communications to doctors and nurses, simplifying recordkeeping, reducing errors and cutting costs. Symbol supports voice, data and patient monitoring on the same wireless network – with enhanced security to protect vital, confidential information.

• Postal

Moving the mail and packages is a bigger challenge than ever. Wireless networks provide not just tracking, but access to information that improves all aspects of postal operations.

• Hospitality

Greater convenience for guests, in the form of improved check-in/check-out, is just the beginning. Now, with wireless solutions from Symbol, hotels can provide high-speed, secure Internet access via wireless LANs, making information resources available anywhere on the property for staff, guests and conference attendees.

• Education

The "unwiring" of college campuses is a major factor in higher education today, allowing students, faculty and administrative staff access to information across the campus...anywhere, anytime. Symbol unwires campuses without compromising student records and other secure information, and also enables quick and secure hot-spot networking services for conferences and other activities.

• Finance

For trading floors, insurance claims adjustment and beyond, the convenience of wireless is undeniable. Wireless technology from Symbol is ideal for all demanding, security intensive real-time operations.

Moreover, we're now seeing the rapid evolution of a truly horizontal market for wireless — one that brings the broad and general functions of the LAN to users in essentially every mobile use in every industry. Wireless LANs can do most anything a wired LAN can with greater convenience and often at lower costs — when life-cycle expense and the productivity-enhancing benefits of wireless are considered. Indeed, Symbol realized very early on that mobile professionals with mobile computers need mobile networks in order to truly realize the benefits of mobility. Regardless of industry, type or size of facility, or application, Symbol's wireless products and services lead the industry in performance, functionality and payback.



And, unlike most wireless vendors, we back our products with the most comprehensive service and support available — SymbolCare™ Services. As we said, wireless is now mission-

critical, and Symbol provides everything needed to meet that challenge, including network analysis and design, service-level agreements, installation and integration, remote network monitoring, and network configuration and management. We also provide customization of both hardware and software whenever unique applications demands are present.

Wireless LANs: No Longer Second-Tier

No single communications technology has had more of an impact on networking in the last ten years than the wireless LAN. WLANs have, indeed, redefined networks, from static entities dependent upon a wired connection between the user and the wall, to one that provides anytime, anywhere, mission-critical communications throughout all areas of the enterprise. From shop floor to executive suite, from front office to back, from headquarters to the field, from small business to multi-national corporation, from data-collection applications to any information processing required within the entire firm, WLANs have presented IT and network management with a powerful new tool to improve productivity, cut costs, improve customer service, and bring information to those who need it no matter where they happen to be.

At Symbol, we recognized the potential of the wireless LAN more than 15 years ago.

- Our SpectrumOne® product line was among the very first successful commercial wireless LANs, bringing the benefits of wireless to data collection applications with its announcement in 1989.
- We were founding members (in 1991) of the IEEE 802.11 committee, which has produced (and continues to produce) so many important wireless LAN standards, many of these efforts chaired by key staff from Symbol.
- We were also founding members of both the Wireless LAN Alliance (WLANA) and the Wireless Ethernet Compatibility Alliance (WECA), originator of "Wi-Fi" interoperability testing - again, with key contributions from Symbol.
- Symbol's award-winning Spectrum24® High Rate product line is among the most complete 802.11b/Wi-Fi product families available, and has set the pace in both OEM products and a broad range of end-user applications. Spectrum24 offers the most complete wireless connectivity available and even includes our NetVision® Phone, the first wireless LAN based voice-over-IP (VoIP) telephone handset available.

The real value of the wireless LAN comes from its ability to provide reliable, high-speed access to users roaming essentially anywhere within a building, campus, across a multi-location enterprise, or even in public spaces. While end users can justify using WLANs based simply on convenience, and network managers value the reduced infrastructure complexity and lower installation and maintenance costs, the real value in using a wireless LAN is improved productivity. Information is available and can be put to use — where and when it's needed. Users can communicate

wherever they happen to be, with benefits of improved information utilization, shortened response times and, ultimately, competitive advantage.

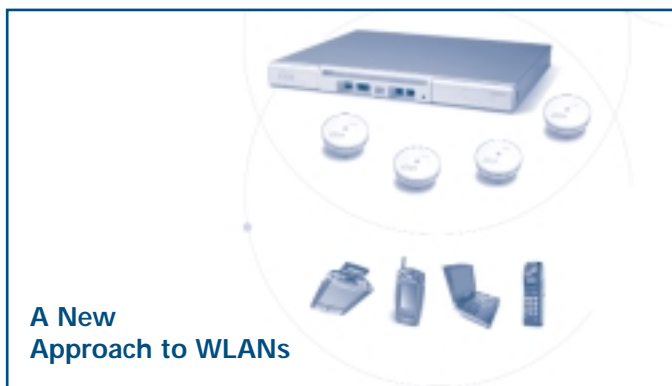
Of course, the wireless LAN has also introduced a whole new range of concerns for IT management, including how to scale an installation over time, how to deal with day-to-day network management issues and, of course, security. This is where Symbol Technologies has taken a dramatically different path from other vendors of wireless LAN equipment, with solutions that meets the needs of network and IT management while providing the most cost-effective products and services available.

In many ways, the story of the wireless LAN is about a journey from portability to true mobility — from devices that are compact enough to carry (but otherwise off the network) to the use of these portable computers for real-time information access. Symbol has always been a leader in mobile computing and with our equally industry-leading wireless LAN products, we now have the most complete and capable product line of any vendor anywhere in the world. Symbol's emphasis on research, development, products and innovation has brought us from being a true pioneer in wireless to the global leader in putting it to work. Indeed, innovation and responsiveness to customer needs are the hallmarks of Symbol's leadership and, today, we offer our innovative, industry-leading Mobius™ Wireless System, with more features designed for mobility than any other product line available.

Wireless Products That Lead the Industry

Symbol has responded to the challenges of the diverse markets noted previously with products that take wireless information distribution as a point of departure and then add value in those dimensions of greatest value to our customers.

The latest addition to our long line of wireless LAN products is the unique Mobius Wireless System — a powerful new approach to wireless LAN deployments, incorporating for the first time every key feature required for mission-critical installations across every market and application. Based on a unique design incorporating a centralized switch, the Mobius Wireless System unifies wireless



LAN technologies including 802.11b, 802.11a (enhanced with a 72 Mbps turbo mode), and legacy frequency-hopping products in a single architecture with centralized management. The Mobius Axon Wireless Switch is connected (via intermediary Ethernet hubs or switches, if desired) to Mobius Axon Access Ports. This approach unifies wireless LAN deployment strategy under a single umbrella, providing a future-proof implementation in what is still a rapidly-changing technology environment. Key requirements, including network management, security, and quality of service, become network functions, no longer dependent on more traditional, individual wireless LAN access points. And importantly, MobiusGuard™ — the most complete wireless LAN security suite available — includes full support for both industry standards and powerful enhancements for authentication, encryption and virtual private network (VPN) support via our AirBEAM® Safe product.

Also, Symbol has the broadest range of wireless client devices available, including:

- Wireless Networker™ PC and CompactFlash™ format cards
- Workgroup Bridges
- Voice-over-IP and Data Mobile Devices
- OEM Developer Kits for Original Designs

We also provide an extensive set of access point and related infrastructure hardware products:

- Spectrum24 802.11 and Spectrum24 High Rate 802.11b Access Points for the 2.4 Ghz band, featuring advanced traffic-management features for traffic classification and quality-of-service support
- 802.11a Access Points for the 2.5 Ghz band, including solutions combining 802.11 and 802.11b media with 802.11a
- Real Time Location System for dynamic tracking of people or materials
- Antennas and Bridges — a wide variety of antennas both for in-building and outdoor applications of up to 30 miles
- Power Distribution — eliminating the need for additional AC or DC power wiring

Finally, our software, service, and support offerings are unmatched in the industry:

- Wireless Network Management System a complete suite of software providing installation, configuration, monitoring, and management tools that also integrates with OpenView, Tivoli, and Unicenter
- Mobile Client Tools providing software for site survey, security, and signal strength and power monitoring
- Web Client for rapid application development
- SymbolCareSM Services and customer support

Looking Ahead

The role that wireless plays in businesses of all types only increases over time. Thanks to dramatic improvements in functionality and price/performance — with Symbol leading the way on both of these key dimensions — wireless will become a requirement in every mobile application. And as the capabilities of wireless networks of all forms continue to improve, we will see solutions that were impossible only a few years ago. For example, handoff of wireless connections from local area to wide area will become transparent. Symbol is already engineering products with such technology today.

Symbol Technologies' long history in wireless is unmatched, as are our products, our services, and our company. Why is Symbol the leader in wireless? What makes us not just different, but unique? Groundbreaking products that define and re-define wireless communications, networking and mobility, enabling improved operations, new applications, and greater productivity and efficiency. Detailed expertise in every aspect of wireless, from technology to markets. An unmatched, unwavering commitment to our customers and to excellence in all that we do.

Symbol Technologies is defining wireless networking. What's next? Just watch — today's innovations are only the beginning.

Why Wireless LANs

The rapid rise of the wireless LAN (WLAN) from laboratory curiosity to key requirement in so many contemporary applications and corporate networks surprised many. But not us. Symbol has been a pioneer and leader in WLANs for well over a decade, because we realized the power and importance of WLANs well before the wireless LAN industry even existed.

What, exactly, is a wireless LAN? Well, it's a local area network, but implemented using wireless techniques so as to eliminate the need for a physical connection between the user and the wall. Untethered users are free to roam where they need to go, all the while maintaining a connection to the network and the information that makes them productive. Wireless LANs are perhaps the most cost-effective way to network mobile computers of any form, and the performance of modern wireless LANs rivals wire in almost every application. Wireless LANs can do anything their wired counterparts can, but without the cord to the wall. Mobile users with mobile computers and mobile applications have in the WLAN a no-compromise mobile network.

Early wireless LANs were purely peer-to-peer, and were not really designed for mobility. A major innovation was the addition of fixed access points to

the configuration, something Symbol pioneered with its SpectrumOne® product in 1989. Access points are a bridge between wireless users and the rest of an enterprise's network resources. Access points can be configured to allow roaming, in much the same way as a cellular telephone network. As a user roams out of range of a given access point, another access point within the same building or even campus picks up the connection. The user (and the applications and network services they're using) don't see the connection handoff but this mechanism can be used to extend the coverage of a given wireless LAN to essentially unlimited range.

The big challenges in wireless LANs, however, extend well beyond the radio and basic LAN connectivity. Issues like security, network management, reliability, and quality-of-service today sit at the top of IT management's list of concerns. For this reason, Symbol has taken the lead with our Mobius products in addressing these concerns, with products and solutions that, for the first time, create a seamless interface between traditional wired networks and wireless LANs. Our innovations have replaced "why wireless LANs" with "why not."

Making It All Possible: Symbol's Wireless Division

Located in San Jose, California, Symbol's Wireless Division is focused on research, product design and development, and marketing for all of our wireless products and technologies. Formed in 1987, the division now employs over 200 staff members. The division contains some of the most sophisticated radio design and development tools available — many of which were developed on-site.

Awards

Symbol Technologies has been globally recognized for our outstanding wireless products and the technologies behind them. Just a few of our many awards include:

- Network Computing Well-Connected Awards for our Spectrum24® High Rate 802.11b Wireless LAN and the Wireless Networker™ CompactFlash™ Wireless LAN Card.
- National Medal of Technology "for laser bar code scanning and for technical innovation and practical application of mobile computing and wireless local area network (LAN) technologies."
- Mobile Insights Mobility Award for the Wireless Networker™ CompactFlash™ Wireless LAN Card
- Nätverk & Kommunikation for the Spectrum24® AP 4131 & LA 41x1 PC Card
- Network Computing Editor's Choice for our Spectrum24® Ethernet Access Point

14 Years of WLAN Industry Leadership and Technology Innovation

Year	Industry Leadership	Product Innovation	Feature Innovation
1987	Wireless division established in San Jose, California to develop wireless systems		
1989		First commercial spread spectrum WLAN system - SpectrumOne® - introduced with first embedded WLAN mobile device	
1993	IEEE 802.11 standards committee established with Symbol as founding member		
1994	Submitted standard proposals for spread spectrum wireless local area networking		
1995	The Wireless LAN Association (WLANA) established with Symbol as founding member to promote WLAN adoption	First IEEE 802.11 frequency hopping WLAN system - Specrum24® -introduced	
1996	Submitted standard proposal for then IEEE 802.11d for international roaming which was folded into WISPR		Developed international roaming features into WLAN systems for aviation industry
1997	The Wireless Ethernet Compatibility Alliance (WECA) established with Symbol as founding member to promote the interoperability of different vendor's IEEE 802.11b WLAN products through WiFi certification	Introduced first IEEE 802.11 wireless VoIP phone - NetVision®Phone - and wireless VoIP data phone - NetVision DataPhone - with integrated bar-code scanning capabilities	
1998	Submitted proposal for IEEE 802.11e standard for Quality of Service (QoS)	IEEE 802.11b direct sequence wireless system wireless - Specrum24 High Rate - introduced and unveiled first Palm OS and WinCE based Wi-Fi capable mobile computing devices	Developed QoS features for NetVision IEEE 802.11 appliances. Developed pre-emptive roaming and load balancing features into access points
1999		Wireless Network Management System developed to manage, monitor, and maintain wireless networks	Developed first browser-based user interface (UI) for Symbol WLAN systems
2000	Formed IEEE 802.15 committee for Bluetooth/IEEE 802.11b coexistence. Symbol currently chairs committee. Submitted proposal for IEEE 802.11i wireless security standard for authentication and encryption	Developed Bluetooth wireless ring scanner	Developed power save protocol for Symbol's Spectrum24 systems
2001		Introduced industry's first Wi-Fi certified CompactFlash™ WLAN adapter - Wireless Networker™ CompactFlash card	Implemented Kerberos into Spectrum24 High Rate for mobility centric wireless security. Developed WLAN queue fairness and switched network support features into Spectrum24 High Rate
2002		Introduced the MobiusGuard™ portfolio of wireless security mechanisms. Developed embedded CompactFlash IEEE 802.11b and GPRS and voice over GSM dual mode LAN/WAN module Introduced Mobius™ Wireless System—the breakthrough WLAN archetecture with intelligence centralized at the switch	Implemented virtual LAN (VLAN), TKIP, and EAP/TLS security features into Spectrum24 High Rate

SYMBOL

Wireless Backgrounder

Specifications are subject to change without notice.
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For system, product or services availability and specific information within your country, please contact your local Symbol Technologies office or Business Partner.



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